

Table of Contents

Summary	S-1
Chapter 1 Proposed Project	1-1
1.1 INTRODUCTION	1-1
1.1.1 Recommendations from Previous Project Planning Studies.....	1-4
1.2 PROJECT PURPOSE AND NEED.....	1-5
1.2.1 Purpose of the Project	1-5
1.2.2 Need for the Project	1-5
Chapter 2 Project Alternatives.....	2-1
2.1 PROJECT ALTERNATIVES BACKGROUND	2-2
2.1.1 Steps Taken to Develop Project Alternatives	2-2
2.2 PROJECT ALTERNATIVES.....	2-4
2.2.1 Common Design Features of the Build Alternatives	2-15
2.2.2 Unique Features of the Build Alternatives.....	2-18
2.2.3 Transportation System Management/Transportation Demand Management Alternative.....	2-24
2.2.4 No Build (No Action) Alternative	2-25
2.2.5 Construction, Staging, and Phasing	2-27
2.2.6 Comparison of Alternatives	2-30
2.2.7 Identification of the Preferred Alternative.....	2-30
2.2.8 Alternatives Considered but Eliminated from Further Discussion Prior to Draft Environmental Impact Report/Environmental Impact Statement	2-43
2.3 PERMITS AND APPROVALS NEEDED.....	2-58
Chapter 3 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures	3.1.1-1
3.1 HUMAN ENVIRONMENT	3.1.1-2
3.1.1 Land Use	3.1.1-2
3.1.2 Growth	3.1.2-1
3.1.3 Farmlands/Timberlands	3.1.3-1
3.1.4 Community Impacts.....	3.1.4-1
3.1.5 Utilities/Emergency Services.....	3.1.5-1
3.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities.....	3.1.6-1
3.1.7 Visual/Aesthetics	3.1.7-1
3.1.8 Cultural Resources	3.1.8-1
3.2 PHYSICAL ENVIRONMENT	3.2.1-1
3.2.1 Hydrology and Floodplains.....	3.2.1-1
3.2.2 Water Quality and Stormwater Runoff	3.2.2-1
3.2.3 Geology/Soils/Seismic/Topography	3.2.3-1
3.2.4 Paleontology	3.2.4-1
3.2.5 Hazardous Waste/Materials	3.2.5-1
3.2.6 Air Quality	3.2.6-1
3.2.7 Noise	3.2.7-1
3.2.8 Energy	3.2.8-1

**FINAL ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL IMPACT STATEMENT**

TABLE OF CONTENTS

3.3	BIOLOGICAL ENVIRONMENT	3.3-1
3.3.1	Natural Communities	3.3.1-1
3.3.2	Wetlands and Other Waters	3.3.2-1
3.3.3	Plant Species	3.3.3-1
3.3.4	Animal Species	3.3.4-1
3.3.5	Threatened and Endangered Species	3.3.5-1
3.3.6	Invasive Species	3.3.6-1
3.4	RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY	3.4-1
3.4.1	Build Alternatives	3.4-1
3.4.2	No Build Alternative.....	3.4-1
3.5	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED PROJECT	3.5-1
3.6	CUMULATIVE IMPACTS.....	3.6-1
3.6.1	Regulatory Setting	3.6-1
3.6.2	Methodology	3.6-1
3.6.3	Affected Environment.....	3.6-2
3.6.4	Reasonably Foreseeable Projects	3.6-3
3.6.5	Resources not Subject to Cumulative Impact Analysis	3.6-3
3.6.6	Avoidance, Minimization, and/or Mitigation Measures	3.6-26
Chapter 4	California Environmental Quality Act (CEQA) Evaluation	4-1
4.1	DETERMINING SIGNIFICANCE UNDER CEQA	4-1
4.2	DISCUSSION OF SIGNIFICANCE OF IMPACTS.....	4-1
4.2.1	No Impacts of the Proposed Project.....	4-2
4.2.2	Less than Significant Impacts of the Proposed Project.....	4-5
4.2.3	Less than Significant with Mitigation for Impacts of the Proposed Project	4-23
4.2.4	Mandatory Findings of Significance.....	4-77
4.2.5	Unavoidable Significant Environmental Effects	4-79
4.2.6	Significant Irreversible Environmental Changes	4-80
4.2.7	Climate Change.....	4-80
4.2.8	Mitigation Measures for Potentially Significant and Less than Significant with Mitigation Impacts under CEQA	4-96
Chapter 5	Comments and Coordination	5-1
5.1	PERMITS AND APPROVALS NEEDED	5-4
5.2	COORDINATION WITH AGENCIES AND PUBLIC.....	5-5
5.2.1	23 U.S.C. 139 Coordination.....	5-5
5.2.2	Project Team Coordination	5-9
5.2.3	NOP/NOI Scoping Process	5-15
5.2.4	Native American Coordination	5-32
5.2.5	Cultural Resources Coordination.....	5-33
Chapter 6	List of Preparers	6-1
Chapter 7	Distribution List	7-1

Appendices

- Appendix A CEQA Checklist
- Appendix B Resources Evaluated Relative to the Requirements of Section 4(f) and 6(f)
- Appendix C Title VI Policy Statement
- Appendix D Summary of Relocation Benefits
- Appendix E Environmental Commitment Record
- Appendix F List of Technical Studies
- Appendix G List of Acronyms
- Appendix H References
- Appendix I Public and Agency Coordination
- Appendix J Air Quality
- Appendix K Utility Locations
- Appendix L Traffic
- Appendix M Proposed Ramp Closure Detour Routes
- Appendix N Noise Information
- Appendix O Biological Resources
- Appendix P Project Plans
- Appendix Q Hydrology & Floodplains/Water Quality & Stormwater Runoff Exhibits
- Appendix R1 Draft EIR/EIS Response to Comments
- Appendix R2 Supplemental Draft EIR/EIS Response to Comments

Figures

Figure 1-1: Regional Vicinity Map.....	1-2
Figure 1-2: Project Location Map.....	1-3
Figure 1-3: Levels of Service Criteria for Freeways	1-8
Figure 2-1: Lane Configurations, Northbound	2-6
Figure 2-2: Lane Configurations, Southbound	2-7
Figure 2-3: Express Lane Access Locations	2-13
Figure 2-4: Example of Sign at Express Lane Ingress Points Showing Tolls for Use of Express Lanes.....	2-22
Figure 2-5: Transponder with Occupancy Switch	2-23
Figure 2-6: I-405 Lane Configuration – Existing and Future No Build Alternative Conditions	2-29
Figure 2-7: Construction Stages.....	2-30
Figure 2-8: Cross Sections of MIS Alternatives	2-47
Figure 3.1.1-1: Existing Land Uses Contained within the I-405 Corridor	3.1.1-3
Figure 3.1.1-2: Existing Land Uses Contained within the I-405 Corridor	3.1.1-5
Figure 3.1.1-3: Existing Land Uses Contained within the I-405 Corridor	3.1.1-7
Figure 3.1.1-4: Public Parks and Recreation Facilities within 0.5-Mile of the Proposed Project	3.1.1-36
Figure 3.1.1-5: Location of Buckingham Park and Acquisition.....	3.1.1-43
Figure 3.1.1-6: Location of Santa Ana River Trail	3.1.1-44
Figure 3.1.1-7: Location of San Gabriel River Trail	3.1.1-45
Figure 3.1.1-8: Location of Cascade Park and Acquisition	3.1.1-46
Figure 3.1.1-9: Location of Pleasant View Park and Acquisition	3.1.1-47
Figure 3.1.3-1: Farmlands within the Project Study Area	3.1.3-3
Figure 3.1.4-1: Community Zones within the Project Study Area	3.1.4-2

**FINAL ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL IMPACT STATEMENT**

TABLE OF CONTENTS

Figure 3.1.4-2: Census Tracts in the Vicinity of the I-405 Corridor	3.1.4-6
Figure 3.1.4-3: Community Service Facilities within 500-foot Radius of I-405 within Project Limits.....	3.1.4-15
Figure 3.1.4-4: Commercial Properties Subject to Partial Acquisition under All Build Alternatives near the Warner/Magnolia Interchange.....	3.1.4-34
Figure 3.1.4-5: Census Tract within the Project Study Area that Contains Minority Populations of More than 50 Percent	3.1.4-39
Figure 3.1.5-1: Proposed Relocations for Gas Lines near NAVWPNSTA Seal Beach	3.1.5-16
Figure 3.1.6-1: Traffic Study Area within Orange County.....	3.1.6-5
Figure 3.1.6-2: Existing (2009) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-13
Figure 3.1.6-2: Existing (2009) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-15
Figure 3.1.6-3: I-405 Northbound Lane Schematic	3.1.6-17
Figure 3.1.6-4: I-405 Southbound Lane Schematic	3.1.6-18
Figure 3.1.6-5: Study Area within Los Angeles County	3.1.6-36
Figure 3.1.6-6: Study Area Freeway Lane Configuration – Locations in Los Angeles County.....	3.1.6-41
Figure 3.1.6-7: Study Area Intersection Lane Configuration – Locations in Los Angeles County.....	3.1.6-43
Figure 3.1.6-8: Existing (2009) Freeway Traffic Volumes for AM/PM Peak Hour – Locations in Los Angeles County.....	3.1.6-47
Figure 3.1.6-9: Existing (2009) Intersection Traffic Volumes for AM/PM Peak Hour – Locations in Los Angeles County.....	3.1.6-55
Figure 3.1.6-10: 2020 No Build Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-65
Figure 3.1.6-10: 2020 No Build Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-67
Figure 3.1.6-11: 2020 Alternative 1 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-69
Figure 3.1.6-11: 2020 Alternative 1 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-71
Figure 3.1.6-12: 2020 Alternative 2 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-73
Figure 3.1.6-12: 2020 Alternative 2 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-75
Figure 3.1.6-13: 2020 Alternative 3 (Preferred Alternative) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-77
Figure 3.1.6-13: 2020 Alternative 3 (Preferred Alternative) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-79
Figure 3.1.6-14: 2040 No Build Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-81
Figure 3.1.6-14: 2040 No Build Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-83
Figure 3.1.6-15: 2040 Alternative 1 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-85
Figure 3.1.6-15: 2040 Alternative 1 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-87

Figure 3.1.6-16: 2040 Alternative 2 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-89
Figure 3.1.6-16: 2040 Alternative 2 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-91
Figure 3.1.6-17: 2040 Alternative 3 (Preferred Alternative) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 1 of 2).....	3.1.6-93
Figure 3.1.6-17: 2040 Alternative 3 (Preferred Alternative) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Orange County (page 2 of 2).....	3.1.6-95
Figure 3.1.6-18: 2020 No Build Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-135
Figure 3.1.6-19: 2020 Alternative 1 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-137
Figure 3.1.6-20: 2020 Alternative 2 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-139
Figure 3.1.6-21: 2020 Alternative 3 (Preferred Alternative) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-141
Figure 3.1.6-22: 2040 No Build Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-143
Figure 3.1.6-23: 2040 Alternative 1 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-145
Figure 3.1.6-24: 2040 Alternative 2 Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-147
Figure 3.1.6-25: 2040 Alternative 3 (Preferred Alternative) Freeway Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-149
Figure 3.1.6-26: 2020 No Build Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-151
Figure 3.1.6-27: 2020 Alternative 1 Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-153
Figure 3.1.6-28: 2020 Alternative 2 Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-155
Figure 3.1.6-29: 2020 Alternative 3 (Preferred Alternative) Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-157
Figure 3.1.6-30: 2040 No Build Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-159
Figure 3.1.6-31: 2040 Alternative 1 Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-161
Figure 3.1.6-32: 2040 Alternative 2 Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-163
Figure 3.1.6-33: 2040 Alternative 3 (Preferred Alternative) Intersection Traffic Volumes AM/PM Peak Hours – Locations in Los Angeles County.....	3.1.6-165
Figure 3.1.7-1: Corridor Viewshed.....	3.1.7-4
Figure 3.1.7-2: Shopping District Landscape Unit, Typical Views.....	3.1.7-7
Figure 3.1.7-3: South Residential Landscape Unit, Typical Views.....	3.1.7-9
Figure 3.1.7-4: Industrial Landscapes Unit, Typical Views	3.1.7-11
Figure 3.1.7-5: Residential Connections Landscape Unit, Typical Views	3.1.7-13
Figure 3.1.7-6: Commercial Centers Landscape Unit, Typical Views	3.1.7-17
Figure 3.1.7-7: Northwest Residential Landscape Unit, Typical Views	3.1.7-19
Figure 3.1.7-8: Open Space-Residential Landscape Unit, Typical Views	3.1.7-21

**FINAL ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL IMPACT STATEMENT**

TABLE OF CONTENTS

Figure 3.1.7-9: Key Viewpoint #15 Location Map.....	3.1.7-35
Figure 3.1.7-10: Alternative 1, Key Viewpoint #15, South Residential Landscape Unit....	3.1.7-36
Figure 3.1.7-11: Key Viewpoint #17 Location Map.....	3.1.7-39
Figure 3.1.7-12: Alternative 1, Key Viewpoint #17A, Industrial Landscape Unit.....	3.1.7-40
Figure 3.1.7-13: Alternative 1, Key Viewpoint #17B, Industrial Landscape Unit.....	3.1.7-41
Figure 3.1.7-14: Key Viewpoint #20 Location Map.....	3.1.7-44
Figure 3.1.7-15: Alternative 1, Key Viewpoint #20, Industrial Landscape Unit.....	3.1.7-45
Figure 3.1.7-16: Key Viewpoint #25 Location Map.....	3.1.7-48
Figure 3.1.7-17: Alternative 1, Key Viewpoint #25, Residential Connections Landscape Unit	3.1.7-49
Figure 3.1.7-18: Key Viewpoint #40 Location Map.....	3.1.7-52
Figure 3.1.7-19: Alternative 1, Key Viewpoint #40, Commercial Center Landscape Unit	3.1.7-53
Figure 3.1.7-20: Key Viewpoint #50 Location Map.....	3.1.7-56
Figure 3.1.7-21: Alternative 1, Key Viewpoint #50, Northwest Residential Landscape Unit.....	3.1.7-57
Figure 3.1.7-22: Key Viewpoint #59 Location Map.....	3.1.7-60
Figure 3.1.7-23: Alternative 1, Key Viewpoint #59, Open Space-Residential Landscape Unit.....	3.1.7-61
Figure 3.1.7-24: Key Viewpoint #20 Location Map.....	3.1.7-64
Figure 3.1.7-25: Alternative 2, Key Viewpoint #20, Industrial Landscape Unit.....	3.1.7-65
Figure 3.1.7-26: Key Viewpoint #40 Location Map.....	3.1.7-68
Figure 3.1.7-27: Alternative 2, Key Viewpoint #40, Commercial Center Landscape Unit	3.1.7-69
Figure 3.1.7-28: Key Viewpoint #59 Location Map.....	3.1.7-72
Figure 3.1.7-29: Alternative 2, Key Viewpoint #59, Open Space-Residential Landscape Unit.....	3.1.7-73
Figure 3.1.7-30: Alternative 3 (Preferred Alternative), Key Viewpoint #20, Industrial Landscape Unit	3.1.7-77
Figure 3.1.7-31: Alternative 3 (Preferred Alternative), Key Viewpoint #40, Commercial Centers Landscape Unit	3.1.7-78
Figure 3.1.7-32: Alternative 3 (Preferred Alternative), Key Viewpoint #59, Open Space-Residential Landscape Unit.....	3.1.7-79
Figure 3.1.7-33: Key Viewpoint #2 Location Map.....	3.1.7-80
Figure 3.1.7-34: Alternative 3 (Preferred Alternative), Key Viewpoint #2, Shopping District Landscape Unit	3.1.7-81
Figure 3.2.2-1: Hydrologic Subareas within the I-405 Improvement Project Corridor.....	3.2.2-7
Figure 3.2.2-2: Orange County Groundwater Basin.....	3.2.2-10
Figure 3.2.3-1: Seismic Hazard Zone Map	3.2.3-3
Figure 3.2.3-2: Major Active Faults in the Project Area	3.2.3-5
Figure 3.2.3-3: Major Active Faults in the Project Area	3.2.3-6
Figure 3.2.4-1: Paleontological Sensitivities	3.2.4-3
Figure 3.2.4-2: Paleontological Sensitivities	3.2.4-5
Figure 3.2.5-1: REC Location Map	3.2.5-7
Figure 3.2.6-1: South Coast Air Basin.....	3.2.6-8
Figure 3.2.6-2: Air Monitoring Locations	3.2.6-11
Figure 3.2.6-3: Sensitive Receptor Locations (Seal Beach Boulevard to Springdale Street).....	3.2.6-13

Figure 3.2.6-4: Sensitive Receptor Locations (Springdale Street to Warner Avenue)	3.2.6-14
Figure 3.2.6-5: Sensitive Receptor Locations (Bushard Street to Fairview Road).....	3.2.6-15
Figure 3.2.6-6: National MSAT Emission Trends 1999 - 2050 for Vehicles Operating on Roadways using EPA's MOBILE6.2 Model.....	3.2.6-42
Figure 3.2.7-1: Noise Levels of Common Activities	3.2.7-2
Figure 3.3-1: Biological Study Area.....	3.3-3
Figure 4-1: 2020 Business-as-Usual(BAU) Emissions Projection 2014 Edition	4-86
Figure 4-2: Possible Effect of Traffic Operation Strategies in Reducing On-Road CO ₂ Emission.....	4-86
Figure 4-3: Mobility Pyramid	4-90
Figure 5-1: Public Notice of Scoping Advertisement.....	5-13
Figure 5-2: Public Scoping Notice Mailer	5-14
Figure 5-3: Public Notice for Draft EIR/EIS Public Review Period	5-27
Figure 5-4: Public Notice for Extension of Draft EIR/EIS Public Review Period.....	5-28
Figure 5-5: Public Notice for Supplemental Draft EIR/EIS Public Review Period	5-29

Tables

Table S-1: Mobility by Alternatives (2040).....	S-13
Table S-2: Project Impact Summary Table.....	S-19
Table S-3: Project Schedule.....	S-51
Table S-4: Probable Permit Requirements and Approvals	S-53
Table 1-1: Improvements Recommended in I-405 Route Concept Report	1-6
Table 1-2: Existing and Projected 2020 and 2040 LOS and V/C, Northbound General Purpose Lanes	1-9
Table 1-3: Existing and Projected 2020 and 2040 LOS and V/C, Southbound General Purpose Lanes	1-9
Table 1-4: Existing and 2040 No Build Travel Time on I-405 from SR-73 to I-605 for Existing Condition and Year 2040 No Build Alternative(minutes)	1-10
Table 1-5: Vehicle Hours of Delay Existing and Years 2020 and 2040 on Weekdays	1-10
Table 1-6: Existing and Forecast 2020 and 2040 Daily and Peak-Hour Traffic Volumes on I-405 within the Project Limits	1-11
Table 1-7: Population Projections and Growth Trends.....	1-12
Table 1-8: Employment Projections and Growth Trends	1-12
Table 1-9: Proposed Funding and Shortfall	1-19
Table 2-1: Mobility by Alternatives (2040)	2-34
Table 2-2: I-405 Improvement Project Alternatives Comparison	2-35
Table 2-3: Probable Permit Requirements and Approvals	2-58
Table 3.1.1-1: Consistency Analysis with Adopted Local and Regional Plans for Build Alternatives	3.1.1-22
Table 3.1.1.2: Park and Recreational Facilities in the Project Study Area.....	3.1.1-37
Table 3.1.2-1: Population Growth Forecast within Cities/Communities Covering Project Study Area	3.1.2-3
Table 3.1.2-2: Regional Housing Need Allocation for Cities/Communities Covering Project Study Area (January 1, 2006 through June 30, 2014)	3.1.2-4
Table 3.1.2-3: Jobs/Housing Ratio for Cities/Communities Covering Project Study Area ..	3.1.2-5
Table 3.1.4-1: Study Area Population Demographics	3.1.4-7

**FINAL ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL IMPACT STATEMENT**

TABLE OF CONTENTS

Table 3.1.4-2: Racial Composition of Population in the Study Area	3.1.4-7
Table 3.1.4-3: Study Area Socioeconomic Characteristics	3.1.4-9
Table 3.1.4-4: Study Area Employment Data, Location of Work, and Means of Transportation to Work.....	3.1.4-9
Table 3.1.4-5: Study Area Housing Tenure	3.1.4-13
Table 3.1.4-6: Labor Force Data in Orange County as of September 2010	3.1.4-13
Table 3.1.4-7: Preliminary Parking Impact Assessment under All Build Alternatives	3.1.4-17
Table 3.1.5-1: Utilities Serving the I-405 Project Corridor	3.1.5-2
Table 3.1.5-2: Numbers and Types of Utility Conflicts and Utility Disposition.....	3.1.5-12
Table 3.1.6-1: Years 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination for the Build Alternatives – Locations in Orange County	3.1.6-7
Table 3.1.6-2: I-405 Mainline Average Daily Traffic in the Area of Proposed Improvements	3.1.6-22
Table 3.1.6-3: I-405 Mainline Estimated Daily Vehicle Miles of Travel in the Area of Proposed Improvements.....	3.1.6-22
Table 3.1.6-4: I-405 Mainline GP Lane Density, LOS, and Volume-to-Capacity Ratio for Year 2020 – Locations in Orange County.....	3.1.6-23
Table 3.1.6-5: I-405 Mainline HOV/Express Lane LOS and Volume-to-Capacity Ratio for Year 2020 – Locations in Orange County.....	3.1.6-23
Table 3.1.6-6: Speed Index Summary – Year 2040 in the Area of Proposed Improvements	3.1.6-25
Table 3.1.6-7: Corridor Travel Time in the Area of Proposed Improvements	3.1.6-26
Table 3.1.6-8: Vehicle Hours of Delay – Existing and Years 2020 and 2040 on Weekdays in the Area of Proposed Improvements	3.1.6-27
Table 3.1.6-9: 2020 Branch Connector Volumes and Volume-to-Capacity Ratios – Locations in Orange County	3.1.6-29
Table 3.1.6-10: Existing (2009) Arterial and Freeway Crossings Average Daily Traffic Volumes in the Area of Proposed Improvements	3.1.6-31
Table 3.1.6-11: Number of Locations with Adequate Vehicle Storage in 2009 and 2040 – Locations in Orange County	3.1.6-33
Table 3.1.6-12: Year 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination for Alternative 1 – Locations in Los Angeles County	3.1.6-39
Table 3.1.6-13: Mainline GP Lane Density, LOS, and Volume-to-Capacity Ratio for Year 2020 – Locations in Los Angeles County	3.1.6-49
Table 3.1.6-14: Mainline HOV Volume-to-Capacity Ratio for Year 2020 – Locations in Los Angeles County.....	3.1.6-53
Table 3.1.6-15: 2020 Branch Connector Volumes and Volume-to-Capacity Ratios – Locations in Los Angeles County	3.1.6-53
Table 3.1.6-16: Number of Locations with Adequate Vehicle Storage in 2009 and 2040 – Locations in Los Angeles County	3.1.6-57
Table 3.1.6-17: I-405 Mainline GP Lane Density, LOS, and Volume-to-Capacity Ratio for Year 2040 – Locations in Orange County.....	3.1.6-99
Table 3.1.6-18: I-405 Mainline HOV/Express Lane Density, LOS, and Volume-to- Capacity Ratio for Year 2040 – Locations in Orange County.....	3.1.6-99
Table 3.1.6-19: Peak-Period Hourly Throughput Comparison in the Area of Proposed Improvements for Northbound and Southbound I-405 –Year 2040.....	3.1.6-101
Table 3.1.6-20: 2040 Branch Connector Volumes and Volume-to-Capacity Ratios – Locations in Orange County	3.1.6-103

Table 3.1.6-21: Year 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination after Mitigations for the Build Alternatives – Locations in Orange County	3.1.6-113
Table 3.1.6-22: Transition Area LOS	3.1.6-124
Table 3.1.6-23: Comparison of Intersection Operations at Magnolia Street and the Southbound I-405 Ramps with 2 and 3 Through Lanes on Southbound Magnolia Street.....	3.1.6-132
Table 3.1.6-24: Mainline GP Lane Density, LOS, and Volume-to-Capacity Ratio for Year 2040 – Locations in Los Angeles County	3.1.6-169
Table 3.1.6-25: Mainline HOV Volume-to-Capacity Ratio for Year 2040 – Locations in Los Angeles County.....	3.1.6-169
Table 3.1.6-26: 2040 Branch Connector Volumes and Volume-to-Capacity Ratios – Locations in Los Angeles County.....	3.1.6-171
Table 3.1.6-27: Year 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination after Traffic Measures for Alternative 1 – Locations in Los Angeles County.....	3.1.6-179
Table 3.1.6-28: Year 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination for Alternative 2 – Locations in Los Angeles County.....	3.1.6-183
Table 3.1.6-29: Year 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination after Traffic Measures for Alternative 2 – Locations in Los Angeles County.....	3.1.6-187
Table 3.1.6-30: Year 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination for Alternative 3 – Locations in Los Angeles County.....	3.1.6-191
Table 3.1.6-31: Year 2020 and 2040 Peak-Hour Intersections LOS and Adverse Effect Determination after Traffic Measures for Alternative 3 – Locations in Los Angeles County.....	3.1.6-195
Table 3.1.7-1: Alternative 1, Key Viewpoint #15 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-38
Table 3.1.7-2: Alternative 1, Key Viewpoint #15 Analysis Summary	3.1.7-38
Table 3.1.7-3: Alternative 1, Key Viewpoints #17A and B Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-43
Table 3.1.7-4: Alternative 1, Key Viewpoint #17A and B Analysis Summary.....	3.1.7-43
Table 3.1.7-5: Alternative 1, Key Viewpoint #20 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-47
Table 3.1.7-6: Alternative 1, Key Viewpoint #20 Analysis Summary	3.1.7-47
Table 3.1.7-7: Alternative 1, Key Viewpoint #25 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-51
Table 3.1.7-8: Alternative 1, Key Viewpoint #25 Analysis Summary	3.1.7-51
Table 3.1.7-9: Alternative 1, Key Viewpoint #40 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-55
Table 3.1.7-10: Alternative 1, Key Viewpoint #40 Analysis Summary	3.1.7-55
Table 3.1.7-11: Alternative 1, Key Viewpoint #50 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-59
Table 3.1.7-12: Alternative 1, Key Viewpoint #50 Analysis Summary	3.1.7-59
Table 3.1.7-13: Alternative 1, Key Viewpoint #59 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-63

**FINAL ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL IMPACT STATEMENT**

TABLE OF CONTENTS

Table 3.1.7-14: Alternative 1, Key Viewpoint #59 Analysis Summary	3.1.7-63
Table 3.1.7-15: Alternative 2, Key Viewpoint #20 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-67
Table 3.1.7-16: Alternative 2, Key Viewpoint #20 Analysis Summary	3.1.7-67
Table 3.1.7-17: Alternative 2, Key Viewpoint #40 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-71
Table 3.1.7-18: Alternative 2, Key Viewpoint #40 Analysis Summary	3.1.7-71
Table 3.1.7-19: Alternative 2, Key Viewpoint #59 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-75
Table 3.1.7-20: Alternative 3, Key Viewpoint #59 Analysis Summary	3.1.7-75
Table 3.1.7-21: Alternative 3, Key Viewpoint #2 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers	3.1.7-83
Table 3.1.7-22: Alternative 3, Key Viewpoint #2 Analysis Summary	3.1.7-83
Table 3.2.1-1: Flood Hazard Areas within the I-405 Improvement Project Corridor	3.2.1-2
Table 3.2.1-2: Potential Floodplain Encroachment Summary.....	3.2.1-12
Table 3.2.1-3: Risks of the Action	3.2.1-13
Table 3.2.2-1: Beneficial Uses of Santa Ana River (Reach 1)	3.2.2-11
Table 3.2.2-2: Beneficial Uses of the Orange Groundwater Management Zone.....	3.2.2-12
Table 3.2.2-3: Impervious Surface Area Values by Alternative.....	3.2.2-13
Table 3.2.2-4: Disturbed Soil Area by Alternative	3.2.2-17
Table 3.2.5-1: Database Summary Review Table of Potential ROW Acquisition REC Properties for all Alternatives (*Alternative 3 only).....	3.2.5-9
Table 3.2.5-2 Database Summary Review Table of the Non-ROW Acquisition REC Properties	3.2.5-10
Table 3.2.5-3 List of Impacted Bridges	3.2.5-20
Table 3.2.6-1: Ambient Air Quality Standards	3.2.6-3
Table 3.2.6-2: South Coast Air Basin Attainment Status	3.2.6-5
Table 3.2.6-3: 2007-2009 Ambient Air Quality Data in Project Vicinity	3.2.6-12
Table 3.2.6-4: Vehicle Miles Traveled by Segment	3.2.6-22
Table 3.2.6-5: Average Daily Traffic and Vehicle Miles Traveled	3.2.6-26
Table 3.2.6-6: Estimated 2009 Daily Operational Emissions.....	3.2.6-26
Table 3.2.6-7: Estimated 2020 Daily Operational Emissions.....	3.2.6-27
Table 3.2.6-8: Estimated 2040 Daily Operational Emissions.....	3.2.6-27
Table 3.2.6-9: Estimated Daily Construction Emissions	3.2.6-33
Table 3.2.6-10: Estimated Carbon Monoxide Concentrations – 2020.....	3.2.6-37
Table 3.2.6-11: Estimated Carbon Monoxide Concentrations – 2040.....	3.2.6-38
Table 3.2.6-12: Particulate Matter Emissions.....	3.2.6-40
Table 3.2.6-13: MSAT Emissions – 2020	3.2.6-45
Table 3.2.6-14: MSAT Emissions – 2040	3.2.6-47
Table 3.2.7-1: Noise Abatement Criteria.....	3.2.7-2
Table 3.2.8-1: Energy Consumption Factors	3.2.8-3
Table 3.2.8-2: Construction Energy Consumption Factors	3.2.8-3
Table 3.2.8-3: Annual 2040 Direct Energy Consumption	3.2.8-5
Table 3.2.8-4: Indirect Energy Consumption – Construction and Maintenance	3.2.8-7
Table 3.3.1-1: Vegetation Communities/Land Cover Occurring in the BSA.....	3.3.1-2
Table 3.3.1-2: Permanent Impacts to Vegetation Communities by Alternative	3.3.1-4
Table 3.3.1-3: Temporary Impacts to Vegetation Communities by Alternative	3.3.1-4

Table 3.3.2-1: Summary of Potential Jurisdictional Areas within the BSA	3.3.2-5
Table 3.3.2-2: Temporary Impacts and Permanent Loss by Alternative within the BSA.....	3.3.2-16
Table 3.3.3-1: Special-Status Plant Species Potential for Occurrence within BSA	3.3.3-2
Table 3.3.4-1: Special-Status Wildlife Species Potential for Occurrence within BSA	3.3.4-2
Table 3.3.5-1: Summary of Threatened and Endangered Plant Species.....	3.3.5-3
Table 3.3.5-2: Summary of Threatened and Endangered Wildlife Species.....	3.3.5-4
Table 3.6-1: Reasonably Foreseeable Projects	3.6-5
Table 4-1: Construction Equipment Noise	4-12
Table 4-2: Noise Impact Analysis – Alternative 1.....	4-14
Table 4-3: Noise Impact Analysis – Alternative 2.....	4-15
Table 4-4: Noise Impact Analysis – Alternative 3 (Preferred Alternative)	4-18
Table 4-5: Years 2020 and 2040 Peak-Hour Intersections LOS after Mitigation with Cumulative and Project Contribution Impact Determinations for the Build Alternatives – Locations in Orange County	4-31
Table 4-6: Years 2020 and 2040 Peak-Hour Intersections LOS with Cumulative and Project Contribution Impact Determinations for the Build Alternatives – Locations in Orange County	4-35
Table 4-7: Years 2020 and 2040 Peak-Hour Intersections LOS after Mitigation with Cumulative and Project Contribution Impact Determinations for Alternative 1 – Locations in Los Angeles County.....	4-53
Table 4-8: Years 2020 and 2040 Peak-Hour Intersections LOS with Cumulative and Project Contribution Impact Determinations for Alternative 1 – Locations in Los Angeles County.....	4-55
Table 4-9: Years 2020 and 2040 Peak-Hour Intersections LOS after Mitigation with Cumulative and Project Contribution Impact Determinations for Alternative 2 – Locations in Los Angeles County	4-63
Table 4-10: Years 2020 and 2040 Peak-Hour Intersections LOS with Cumulative and Project Contribution Impact Determinations for Alternative 2 – Locations in Los Angeles County.....	4-65
Table 4-11: Years 2020 and 2040 Peak-Hour Intersections LOS after Mitigation with Cumulative and Project Contribution Impact Determinations for Alternative 3 (Preferred Alternative) – Locations in Los Angeles County	4-71
Table 4-12: Years 2020 and 2040 Peak-Hour Intersections LOS with Cumulative and Project Contribution Impact Determinations for Alternative 3 (Preferred Alternative) – Locations in Los Angeles County	4-73
Table 4-13: Estimated Existing Daily Greenhouse Gas Emissions	4-87
Table 4-14: Estimated 2020 Daily Greenhouse Gas Emissions	4-87
Table 4-15: Estimated 2040 Daily Greenhouse Gas Emissions	4-87
Table 4-16: Climate Change/CO ₂ Reduction Strategies	4-92
Table 5-1: Summary of Coordination Activities Conducted to Date	5-1
Table 5-2: Agencies, Roles, and Responsibilities.....	5-6
Table 5-3: Coordination Points for the 139 Process	5-8
Table 5-4: Speakers Bureau Briefings	5-19

This page intentionally left blank.